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STANDARDIZATION OF HOUSING INVESTIGATIONS.

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I had read that Glasgow was the most densely crowded of modern cities, because fourteen per cent. of the families lived in one room. After visiting one of the model tenements of the London County Council, I was asked by a Glasgow mechanic to look into his ancient rookery. The one room in which he and his family lived seemed to me to be larger than the three-room apartment of his fellow who enjoyed the municipal socialism of modern London. The difference was that he put up his own flimsy partitions, while paternal London got the credit of relieving congestion by merely erecting permanent partitions.

In Pittsburg I was told by experts in housing investigations that the cost of housing there was greater than in any other city of the country, but when I compared the few houses that I saw with similar houses in Chicago, taking into account appurtenances, I could not see that the costs were different.

British workmen and employers contended that their lower wages were compensated by the lower cost of food as well as housing, compared with American wages, and I could not refer them to any authentic standards of food and prices, housing and rents, that would disprove their claims to their satisfaction.

If comparisons of this kind were a matter of profit and loss, standard units would long since have been devised. Such units have been worked out by the trusts, syndicates, and engineering societies, in order to bring all of their manufacturing plants, their superintendents, managers, and engineers, their inventions and experiments, to an exact comparison of efficiency based on unit costs.

There is one department of sociology which eventually will make it plain that standard units of housing, food, and occupation, are also a matter of profit and loss. This is the health, vigor, and efficiency of the working population. The trade longevity of the workman, the number of days lost through sickness, fatigue, and devitalizing, the rate of mortality, are the greatest of all matters of national business, and they are largely the results of housing, food, and occupation.

But, to what extent these different factors enter, it is impossible to say until standard units are devised by which to compare each factor with the resulting morbidity, mortality, and fatigue.

Here the problem of the economist and that of the hygienist overlap. The economist is interested in comparative cost of living, the hygienist in comparative causes of industrial efficiency. But the cost of living is really the cost of the workman's efficiency. If so, the unit of comparison which the economist wants is the same unit that the hygienist wants. Take housing as the simplest problem. The comparative cost of housing is the comparative price paid for a unit of housing accommodation. But housing accommodation is not merely floor space or "rooms per occupant": it is also location, air, ventilation, sunlight, structural condition, bath, laundry, running water, etc. These are also the conditions of health. The cost of housing is one of the costs of industrial vigor. If, then, we devise our standard unit with reference to the conditions of health, we shall have practically the standard needed for comparing prices of housing accommodation.

But the unit of housing accommodation is a complicated and elusive one. It consists of many factors, and no two individual investigators attach the same weight to each of the factors. The problem here is exactly the same as that which has been met in standardizing and grading agricultural products, such as wheat, corn, oats, butter, cheese, horses, cows, pigs, and so on. To illustrate by means of the score card used in the department of Animal Husbandry of the University of Wisconsin: A draft horse, perfect in every particular, is represented by 100 points. These are subdivided into a detailed and complete survey of the animal, involving 36 specifications. To each specification is given a weight, or value, of 1 to 10 points, corresponding to its importance in making up the perfect animal. This weighting is a matter of experience, and is changed from time to time. An official score card adopted by a breeders' association, or, in the case of grains, by the produce exchange, is the result of many years of experiment and improvement, both in the description of the specifications and in the weights assigned to each specification. Thus the "general appearance" of the draft horse is now given a weight of 29 points, and this is subdivided into "weight," 5 points, "form," 4 points, "quality," 6 points, "action," 10 points, and "temperament," 3 points. "Head and neck" are given 8 points, subdivided into "head," "forehead," "eyes," "ears," "muzzle," "lower jaw," and "neck," with one or two points each. These standard weights, or values, are printed in a column opposite each specification, and a second, or blank column is provided under the caption "Points Deficient." In using the score card, the "scorer" goes over the horse, noticing in detail all the points specified, and then marks down opposite each his judgment of the degree to which the animal before him is deficient in that particular point. The total of all points deficient is then deducted from 100, and the result is the grade of the animal scored. It is an interesting fact, illustrating the accuracy of this method of standardizing, that recently two horse valuers, one employed by the Wisconsin Railway Commission, and the other by the Milwaukee Street Car Company, in valuing fifty horses belonging to the company, came within one or two points of placing the same value on each horse.

In attempting to adapt the score card method to the housing problem, I have drawn up the following tentative score card for dwelling-houses. The twenty-five specifications can doubtless be greatly improved. Others might be added, and some might be dropped. The weights given to each might be changed materially. The latter, however, is not important, because, if all houses are scored by the field agents according to an agreed scale, any hygienist or economist afterwards can revise the weighting according to his own theory of the relative weights. The main object is to agree on the specifications, and to state them in such a way that as little discretion as possible shall be left to the field agents. Where measurements are possible, this is easily done, as in the case of "window openings." Where measurements are not possible, the agents must depend on their judgment, but this judgment can be brought close to uniformity by means of "instructions for discrediting when depending on judgment." For convenience I have used only the weights 3 and 6 for those specifications depending on judgment, and have introduced the same kind of instructions as those given in the official score cards for horses and cattle. Further instructions will be found under the several specifications.

When a house is scored in this way, from the standpoint of health, we shall have the "total points deficient," and the "actual score" of that house compared with a perfect or ideal house. We are then in a position to compare the rents or cost of housing by correcting the "nominal rent" by means of the "actual score." I have suggested three standard units of comparison; viz., "rent per room," " rent per 100 sq. ft." of floor space, and "rent per 1,000 cu. ft." of air capacity. Taking "rent per 100 sq. ft.," which is probably the fairest unit under all circumstances, it can easily be seen that, of two houses renting nominally at $1.00 per month per 100 sq. ft., if the "actual score" of one is 80 and the other 50, the "real rent" of the one is $1.25 and the other $2.00 for the unit of house accommodation compared with the real rent of $1.00 for a perfect house.

DWELLING HOUSE SCORE CARD

Applies to a single Family or Household

State.................. *City*.......... ....*Street*.................. *No*..........

Name of Owner.......................... *Name of Occupant*.........................

Name of Investigator.. *Date*........

Instructions for Discrediting when Depending on Judgment

Deduct from possible 6; very slight, 1; slight, 2; marked, 3; very marked, 4; extreme, 5.
Deduct from possible 3; very slight, ½; slight, 1; marked, 1½; very marked, 2; extreme, 2½.

I.—DWELLING—100 POINTS	Possible Score	Points Deficient	Actual Score
LOCATION—18 Points	**(18)**	( )	( )
1. General Character of Neighborhood, villa, farm, residence, park (Discredit for factory, slum, neglected district)	3	....	....
2. Elevation, high ground, sloping away on all sides............	3	....	....
3. Condition of Street, width (ft.)...., clean, smooth, hard, free from dust, sprinkled, flushed, free from refuse	3	....	....
(Indicate whether asphalt, block stone, macadam, cobble, wood, dirt)			
4. Smoke, free from (indicate source)........................	3	....	....
5. Odors, free from nauseous (indicate source).................	3	....	....
6. Dust, free from (indicate source).........................	3	....	....
CONGESTION OF BUILDINGS—26 Points	**(26)**	( )	( )
7. Character of Dwelling—10 Points			
Detached	10	....	....
Attached, separate entrance, discredit 1 point			
Attached, common entrance, discredit 2 points			
Flat (entire floor), discredit 3 points			
Apartment (2 or more on same floor), discredit 4 points			
Basement (over ½ above street level), discredit 5 points			
Cellar (over ½ below street level), discredit 6 points			
Additional discredits for flat or apartment without elevator, 2d floor 2 points, 3d floor 3 points, etc.			
8. Sunlight—16 Points			
Height and distance of next building (use foot of its own window in case of flat or apartment, otherwise foot of lower window, as base line above which to measure height of next building)			
Direction **Height** **Distance** **Per Cent** (Ind. street or alley) (feet) (feet) (Height=100)			
North	3	....	....
South	5	....	....
East..	4	....	....
West..	4	....	....
(If distance equals or exceeds height, no points deficient—distance is less than height, actual score is same per cent of possible score as distance to height, e.g., if distance=20% of height, actual score=20% of possible score, etc.)			
WINDOW OPENINGS—11 Points	**(11)**	( )	( )

Rooms (Indicate kitchen, sleeping, bath, etc.)	Window Space (Sq. Ft.)	Floor Space (Sq. Ft.)	Per cent Window Space (Floor space=100)
1........	....	....	....
2........	....	....	....
3........	....	....	....
4........	....	....	....
5........	....	....	....
6........	....	....	....
Total	....	....	....
Number of Rooms (including dark rooms) having window space less than 20%....			....
Per Cent of same to total rooms			....
Number of Dark Rooms			....
Per Cent of same to total rooms........			....

DWELLING HOUSE SCORE CARD—Continued

I.—DWELLING.—100 POINTS.	Possible Score	Points Deficient	Actual Score
9. Total Window Space, not less than 20% of total floor space (Discredit ¼ point for each deficiency of 1%—e.g., window space 16% of floor space, discredit 1 point, leaving actual score 4)	5	....	....
Distribution of Window Space—6 Points			
10. Deficient Rooms, no room less than 20% (Discredit same per cent of possible score as per cent of rooms having window space less 20 per cent, e.g., 6 room house, 2 rooms deficient, discredit ⅓ of 3=1, leaving actual score 2)	3	....	....
11. Dark Rooms, no room without window openings (Discredit same per cent of possible score as per cent of dark rooms, e.g., 6 room house, 1 dark room, discredit ⅙ of 3=½, leaving actual score 2½) **Notice:** dark room is discredited also above as "deficient room."	3	....	....
AIR AND VENTILATION—13 Points	(13)	( )	( )
12. Heating Arrangements, adapted to secure circulation of fresh air, such as open fire-place, hot air furnace, stove (connecting directly with chimney in same room) (Discredit 1 point for steam or hot water, ½ point for each stove connecting with chimney in another room)	4	....	....
13. Temperature, adapted to secure even temperature, not excessive heat or cold, equal in different rooms (Discredit proportionately for each room without heating appliance)	3	....	....
14. Dampness, freedom from (indicate whether cellar, kitchen, sleeping rooms, other rooms)	6	....	....
STRUCTURAL CONDITION—6 Points	(6)	( )	( )
15. Material (Indicate whether wood, brick, stone, concrete), no decayed wood, walls, floors, ceilings in good condition (Discredit ½ point for papered walls or ceilings)	3	....	....
16. Size of Rooms, height of ceiling, not less than 9 feet (Discredit ¼ point for each foot deficient)	1	....	....
17. Floor Space (no room less than 120 sq. ft.) (Discredit proportionately for each room less than 120 sq. ft.)	2	....	....
HOUSE APPURTENANCES—26 Points (Discredit total score in each case if appurtenance not provided)	(26)	( )	( )
18. Bath (Discredit 2 points for common bath)	4	....	....
19. Closet in dwelling (Discredit 1 point for common closet, 2 for outhouse, with sewer connection, 3 without sewer)	4	....	....
20. Sink (Discredit ½ for common sink)	1	....	....
21. Laundry (Discredit ½ for common laundry)	1	....	....
22. Running water in house (Discredit 1 point for common hydrant, 2 for hydrant outside, 3 for well outside)	4	....	....
23. Condition of Appurtenances, good material and workmanship, all pipes exposed	6	....	....
24. Quality of Water for drinking	3	....	....
25. Quality of Water for bath and laundry	3	....	....
DWELLING TOTAL	100	....	....

COST OF HOUSING

Rent per month $........ **Rental value (if occupied by owner) $**.....

Unit of Comparison	**Nominal Rent**	**Real Rent**
Rent per room	$..........	$..........
Rent per 100 sq. ft.	$..........	$..........
Rent per 1,000 cu. ft.	$..........	$..........

....

Probable income of family per month $..........

The foregoing applies solely to the house itself or to the landlord as responsible for the house. But the conditions of health and the cost of housing are modified by the attitude and circumstances of the occupants. These should be separated from the other problem by means of a separate score card. Here the problem of "congestion of occupancy" is paramount, and the unit of comparison is the "rent per occupant." The actual score on the "occupant" card becomes a coefficient of the actual score on the "dwelling" card, and this combined score gives the grading of the unit of housing accommodation as provided by the landlord and modified by the tenant. If, for example, two houses are scored 80 and 50 respectively on the "dwelling" card, and the occupants of each are scored alike at 70 on the "occupant" card, then the combined dwelling and occupant scores are 56 and 35 respectively. If, then, the nominal rent is $2.00 per occupant, the real rents are $3.57 and $5.71 per occupant, compared with $2.00 for the standard dwelling occupied by the standard tenant.

II.—OCCUPANTS—100 POINTS	Possible Score	Points Deficient	Actual Score
CONGESTION OF OCCUPANCY—61 Points	(61)	( )	( )
Occupants, number			
Family, 10 years old and over, male			
" " " " " " female			
Lodgers, Domestics, 10 years old and over, male			
" " " " " " " female			
Children under 10 years			
Total (Child under 10 as ½ person)			
1. Cubic Air Space (average height of ceiling by total floor space), cu. ft.			
Cu. ft. per occupant........No discredit if 1000 or over...	50		
(Discredit 1 point for each 20 ft. below 1000, e.g., 600 cu. ft. discredit 20 points, leaving actual score 30)			
2. Sleeping Rooms per occupant	11		
(Discredit 1 point for each person in excess of number sleeping rooms)			
CONDITION OF AIR AND VENTILATION—18 Points	(18)	( )	( )
3. Windows, kept open to fresh air			
Living rooms	3		
Sleeping rooms	6		
4. Temperature, kept even, not excessive heat or cold	3		
5. Dust, care in avoiding dust by sweeping, no home workshop	6		
CLEANLINESS, care and attention, no rubbish, dirt, grease or refuse,—**21 Points**	(21)	( )	( )
6. Hallways	3		
7. Floors	3		
8. Walls	3		
9. Plumbing	6		
10. Yard	6		
OCCUPANTS TOTAL	100		
Rent per occupant, nominal .... $			
Real rent per occupant (compared with standard) .... $			

The foregoing scheme of standardization has been submitted to a number of hygienists and economists, and, while there is a variety of opinion regarding details, there is a striking unanimity as to the need and value of standardization itself. If the matter were to be taken up in a comprehensive way, there is no reason why standardization should not be established in hygiene and economics as it is in agriculture and engineering.